

**Prevalence, Mortality, and Hospitalization Rates Due to Asthma by County and Public Health  
Region, Texas, 2004-2010**

**Data Requested by**

Texas Commission on Environmental Quality

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**October 11<sup>th</sup>, 2012**

## Executive Summary

Asthma is a significant public health issue in the United States and Texas. The burden of asthma in Texas varies by demographic factors such as sex, race/ethnicity, and age; and geographic area such as Public Health Region (PHR) and county (see appendix for map of Texas PHRs and list of counties by PHR).

- Between 2004 and 2010, 11 (4.3%) of the 254 counties in Texas reported at least 20 deaths in which asthma was the underlying cause. Harris and Dallas Counties had the highest number of asthma-related deaths.
- In 2010, the prevalence of both current and lifetime asthma among children was highest in Public Health Region (PHR) 9 (West Texas), in which an estimated 13.6 percent of children currently had asthma and an estimated 15.1 percent of children had ever been diagnosed with asthma. The prevalence of current asthma among adults was also highest in PHR 9, in which approximately 11.7 percent of adults currently had asthma. The prevalence of lifetime asthma among adults was highest in PHR 1 (High Plains), in which an estimated 17.2 percent had ever been diagnosed with asthma.
- In all of Texas in 2010, individuals aged 0-4 years and aged 65 and over had the highest hospitalization rate at 22.4 per 10,000 person years and 22.2 per 10,000, respectively, which were both significantly higher than the overall state age-adjusted hospitalization rate (AAHR). Among 0-4 year olds, the hospitalization rate was highest in PHR 2, at a rate of 36.4 per 10,000 which was significantly higher than the rate for 0-4 year olds in all of Texas.
- Each year between 2007 and 2010, Harris County and Dallas County had the highest number of asthma hospital admissions. In 2010, among counties with 12 or more asthma hospitalizations, the counties with the highest crude asthma hospitalization rate were Red River County, at 40.4 per 10,000 and Howard County at 34.3 per 10,000. In 2010, the AAHR for asthma for Red River County was 37.2 per 10,000 and at 36.0 per 10,000 for Howard County. In 2007 Howard County had the highest crude asthma hospitalizations rate and AAHR; in 2008 and 2009, Red River County had the highest crude asthma hospitalization rate and AAHR.

This report includes asthma surveillance measures for all of Texas and by age-group, county, and PHR. While not inclusive of all major demographic subpopulations or data sources, the report does provide insight into specific populations which may be more heavily burdened by asthma.

## Age-adjusted Mortality Rate due to Asthma by County and Public Health Region, Texas, 2004-2010

**Table 1. Crude and age-adjusted mortality rates per 100,000 person-years for Asthma<sup>†</sup> by County\*, Texas, 2004-2010**

	Crude Mortality Rate	Age-Adjusted Mortality Rate	95% Confidence Interval (CI)		Number of deaths
			Lower Limit	Upper Limit	
<b>Texas</b>	0.9	1.0	1.0	1.1	1,516
<b>County</b>					
Bexar	0.8	0.9	0.7	1.1	89
Collin	0.5	0.8	0.5	1.2	24
Dallas	0.9	1.2	1.0	1.3	155
El Paso	0.9	1.1	0.8	1.4	49
Fort Bend	0.8	1.1	0.7	1.5	30
Harris	0.7	0.9	0.8	1.0	193
Lubbock	1.1	1.3	0.8	1.9	21
McLennan	1.6	1.6	1.0	2.3	25
Nueces	1.1	1.1	0.7	1.5	24
Tarrant	1.1	1.3	1.1	1.5	132
Travis	0.7	1.1	0.8	1.3	49

Data source: Vital Statistics Unit, Center for Health Statistics, 2010, Texas Department of State Health Services.

<sup>†</sup> The coding system used for establishing cause of death is the ICD-10. The ICD-10 codes for asthma as defined by Vital Statistics are J45-J46 (<http://soupfin.tdh.state.tx.us/icd10.htm>).

\* Counties not listed in the table had fewer than 20 asthma deaths during the years 2004-2010.

**Interpretation for Table 1:**

- Between 2004 and 2010, 11 (4.3%) of the 254 Texas counties reported at least 20 deaths in which asthma was the underlying cause.
- From 2004 to 2010, the age-adjusted mortality rate (AAMR) due to asthma in Texas was 1.0 per 100,000 person-years (95% CI: 1.0-1.1).
- The AAMR due to asthma was highest in McLennan County at a rate of 1.6 per 100,000 person-years (95% CI: 1.0-2.3), but was not significantly higher than the state rate. The second highest AAMR due to asthma was in Lubbock County at a rate of 1.3 per 100,000 person-years (95% CI: 0.8-1.9) and Tarrant County also at a rate of 1.3 per 100,000 person-years (95% CI: 1.1-1.5).
- Of the Texas counties in which there were at least 20 deaths due to asthma, the highest number of deaths occurred in Harris and Dallas Counties with 193 and 155 asthma deaths, respectively.

**Table 2. Prevalence of Current and Lifetime Asthma among Children 0-17 years old by Public Health Region (PHR) and Age Group, Texas, 2010**

	Current Asthma				Lifetime Asthma			
	Sample Size	Prevalence (%)	95% CI		Sample Size	Prevalence (%)	95% CI	
			Lower Limit	Upper Limit			Lower Limit	Upper Limit
<b>Texas</b>	5,036	<b>7.6</b>	6.2	9.0	5,057	<b>11.6</b>	9.9	13.3
<b>Age (years)</b>								
0-4	1,031	8.1	3.9	12.2	1,034	10.3	5.9	14.7
5-9	1,183	8.1	5.7	10.5	1,188	13.2	9.8	16.6
10-14	1,360	7.2	5.4	9.2	1,365	12.2	9.7	14.8
15-17	986	6.0	3.5	8.5	990	10.6	7.7	13.6
<b>PHR 1</b>	481	<b>8.4</b>	2.8	14.1	482	<b>12.1</b>	6.0	18.3
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	122	--	--	--	123	--	--	--
10-14	136	4.2	1.6	6.9	136	--	--	--
15-17	94	3.8	0.6	7.1	94	7.2	2.0	12.4
<b>PHR 2</b>	--	--	--	--	--	--	--	--
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	51	4.0	0.0	8.1	51	5.1	0.3	10.0
10-14	61	--	--	--	61	--	--	--
15-17	--	--	--	--	--	--	--	--
<b>PHR 3</b>	435	<b>9.2</b>	5.8	12.6	436	<b>13.1</b>	9.0	17.3
<b>Age (years)</b>								
0-4	95	7.8	0.0	16.5	95	10.0	0.6	19.4
5-9	104	9.4	3.5	15.3	104	14.7	6.0	23.4
10-14	127	8.7	3.9	13.4	127	12.5	6.5	18.5
15-17	80	8.8	1.0	16.6	81	14.7	5.9	23.6

<b>PHR 4</b>	330	<b>4.5</b>	1.6	7.3	331	<b>9.1</b>	4.5	13.5
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	80	6.7	0.2	13.3	80	10.9	2.5	19.2
10-14	98	5.5	0.8	10.2	99	--	--	--
15-17	--	--	--	--	61	2.9	0.5	5.3
<b>PHR 5</b>	70	<b>5.1</b>	0.0	11.0	71	<b>7.9</b>	1.3	14.5
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	--	--	--	--	--	--	--	--
10-14	--	--	--	--	--	--	--	--
15-17	--	--	--	--	--	--	--	--
<b>PHR 6</b>	902	<b>4.0</b>	2.3	5.7	910	<b>8.3</b>	6.1	10.6
<b>Age (years)</b>								
0-4	180	3.9	0.0	8.1	182	5.8	0.9	10.7
5-9	228	5.8	2.3	9.3	229	12.2	7.1	17.4
10-14	238	2.4	0.5	4.3	240	8.1	4.1	12.0
15-17	156	3.2	0.0	6.7	157	8.4	3.0	13.8
<b>PHR 7</b>	360	<b>9.8</b>	3.3	16.3	363	<b>14.3</b>	7.3	21.3
<b>Age (years)</b>								
0-4	86	--	--	--	87	--	--	--
5-9	90	3.8	0.3	7.3	91	10.8	3.4	18.3
10-14	82	10.1	2.2	17.9	83	13.3	4.3	22.2
15-17	71	4.8	0.0	10.5	71	8.9	0.9	16.8
<b>PHR 8</b>	660	<b>11.2</b>	7.3	14.9	662	<b>14.6</b>	10.5	18.8
<b>Age (years)</b>								
0-4	123	10.0	0.8	18.8	123	10.5	1.5	19.6
5-9	153	10.0	3.8	16.3	155	15.1	7.4	22.8
10-14	161	11.3	3.4	19.2	161	16.6	7.6	25.5

15-17	149	11.4	2.6	20.2	149	14.3	5.2	23.5
<b>PHR 9</b>	296	<b>13.6</b>	6.4	20.8	296	<b>15.1</b>	7.8	22.3
<b>Age (years)</b>								
0-4	67	5.6	0.0	11.3	67	6.0	0.3	11.6
5-9	69	11.7	3.8	19.6	69	12.1	4.1	20.1
10-14	82	13.2	2.1	24.4	82	16.6	4.8	28.4
15-17	--	--	--	--	--	--	--	--
<b>PHR 10</b>	368	<b>7.6</b>	4.3	10.8	368	<b>11.8</b>	7.8	15.8
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	74	7.5	0.0	15.2	74	11.4	2.1	20.7
10-14	108	11.9	4.1	19.6	105	15.8	7.2	24.4
15-17	76	4.7	0.2	9.2	76	15.1	5.3	24.8
<b>PHR 11</b>	815	<b>4.9</b>	2.8	7.0	818	<b>8.8</b>	6.0	11.5
<b>Age (years)</b>								
0-4	--	--	--	--	--	--	--	--
5-9	178	7.9	2.3	13.4	178	12.1	5.1	19.0
10-14	222	9.5	4.0	14.9	122	13.2	7.0	19.4
15-17	166	2.0	0.3	3.6	168	7.7	2.8	12.6

Data source: Texas Behavioral Risk Factor Surveillance System (BRFSS) statewide survey, 2010.

PHR = Public Health Region

'--' Indicates sample size too small to be considered statistically valid.

Notes: Data for children is based on information provided by an adult respondent about the randomly selected child living in the home.

All reported rates are weighted for Texas demographics and the probability of selection.

#### Current Asthma

Numerator = Number of "Yes" responses to both of the following questions:

"Has a doctor, nurse or other health professional ever said that the child has asthma?" and

"Does the child still have asthma?"

Denominator = All respondents to the above questions, excluding unknowns and refusals.

#### Lifetime Asthma

Numerator = Number of "Yes" response to the following question:

"Has a doctor, nurse or other health professional ever said that the child has asthma?"

Denominator = All respondents to the above question, excluding unknowns and refusals.

## Interpretation for Table 2:

- According to the 2010 Texas Behavioral Risk Factor Surveillance System (BRFSS), an estimated 7.6 percent (95% CI: 6.2-9.0) of children in Texas currently had asthma and 11.6 percent (95% CI: 9.9-13.3) of children had ever been diagnosed with asthma.
- In 2010, the prevalence of both current and lifetime asthma among children was highest in PHR 9 (West Texas), in which an estimated 13.6 percent (95% CI: 6.4-20.8) of children currently had asthma and an estimated 15.1 percent (95% CI: 7.8-22.3) of children had ever been diagnosed with asthma. However, the current and lifetime asthma prevalence among children in PHR 9 is not significantly higher than the state prevalence.
- Children living in PHR 6 (Gulf Coast) had the lowest prevalence of current asthma, such that an estimated 4.0 percent (95% CI: 2.3-5.7) of children currently had asthma. This was significantly lower than the prevalence of current asthma among children in PHR 9.
- Children living in PHR 5 (South East Texas) had the lowest prevalence of lifetime asthma, such that an estimated 7.9 percent (95% CI: 1.3-14.5) of children had ever been diagnosed with asthma, however the prevalence was not significantly lower than the state or other PHRs.
- Among children aged 10-14 years, the prevalence of current asthma was significantly lower in PHR 6 (2.4 percent; 95% CI: 0.5, 4.3) compared all of Texas (7.2 percent; 95% CI: 5.4-9.2).



**Table 3. Prevalence of Current and Lifetime Asthma among Adults, by Public Health Region (PHR) and Age Group, Texas, 2010**

	Current Asthma				Lifetime Asthma			
	Sample Size	Prevalence (%)	95% CI		Sample Size	Prevalence (%)	95% CI	
			Lower Limit	Upper Limit			Lower Limit	Upper Limit
<b>Texas</b>	17,948	<b>7.4</b>	6.6	8.2	18,038	<b>12.8</b>	11.6	13.9
<b>Age (years)</b>								
18-29	1,160	7.2	4.7	9.8	1,169	15.6	11.9	19.4
30-44	3,483	7.2	5.7	8.8	3,498	12.0	10.0	13.9
45-64	7,053	7.9	6.8	8.9	7,085	13.5	11.5	15.5
65+	6,090	7.1	6.1	8.1	6,123	11.0	9.8	12.3
<b>PHR 1</b>	1,937	<b>10.5</b>	7.9	13.0	1,953	<b>17.2</b>	13.7	20.8
<b>Age (years)</b>								
18-29	122	11.9	5.8	17.9	--	--	--	--
30-44	335	8.1	3.6	12.6	338	13.9	7.7	20.0
45-64	746	11.7	7.2	16.2	752	16.8	12.0	21.7
65+	726	12.2	7.5	17.0	732	17.5	12.4	22.7
<b>PHR 2</b>	1,033	<b>10.3</b>	5.2	15.4	1,038	<b>15.6</b>	9.6	21.5
<b>Age (years)</b>								
18-29	--	--	--	--	--	--	--	--
30-44	137	4.0	0.3	7.7	137	9.3	0.0	19.2
45-64	396	12.4	6.7	18.0	399	18.9	11.2	26.6
65+	440	9.0	3.5	14.6	442	13.7	7.0	20.4
<b>PHR 3</b>	1,585	<b>9.0</b>	6.7	11.2	1,593	<b>15.8</b>	12.5	19.1
<b>Age (years)</b>								
18-29	76	10.4	2.7	18.0	--	--	--	--
30-44	305	9.4	5.2	13.7	307	15.2	10.0	20.4
45-64	649	8.5	5.9	11.2	652	17.0	10.9	23.2
65+	536	7.5	5.0	10.0	539	12.2	9.0	15.5

<b>PHR 4</b>	1,508	<b>9.6</b>	6.0	13.2	1,517	<b>14.7</b>	10.6	18.8
<b>Age (years)</b>								
18-29	79	--	--	--	81	--	--	--
30-44	207	10.2	2.4	18.6	208	13.6	5.1	22.2
45-64	586	9.6	5.9	13.3	588	13.7	9.5	17.9
65+	620	7.2	3.1	11.2	624	10.5	6.0	15.0
<b>PHR 5</b>	367	<b>9.2</b>	4.3	14.2	367	<b>15.3</b>	9.4	21.3
<b>Age (years)</b>								
18-29	--	--	--	--	--	--	--	--
30-44	55	7.4	0.0	14.8	--	--	--	--
45-64	151	9.4	4.6	14.2	151	17.9	10.6	25.1
65+	140	7.0	2.3	11.7	140	10.6	4.6	16.6
<b>PHR 6</b>	2,753	<b>5.0</b>	3.9	6.0	2,763	<b>10.8</b>	9.0	12.6
<b>Age (years)</b>								
18-29	161	3.4	0.3	6.5	162	15.8	8.3	23.3
30-44	625	4.1	2.3	5.8	625	8.9	6.1	11.8
45-64	1199	6.5	4.8	8.2	1,206	11.3	9.0	13.6
65+	734	5.8	3.9	7.7	736	10.5	7.8	13.3
<b>PHR 7</b>	1,417	<b>8.0</b>	5.8	10.2	1,426	<b>12.3</b>	9.5	15.1
<b>Age (years)</b>								
18-29	94	5.7	0.0	11.4	94	15.0	5.3	24.6
30-44	285	8.8	4.5	13.1	288	12.0	7.0	17.0
45-64	585	8.5	5.2	11.8	588	13.2	9.2	17.2
65+	435	7.1	4.1	10.2	437	8.5	5.3	11.8
<b>PHR 8</b>	2,414	<b>6.8</b>	4.7	8.8	2,424	<b>11.5</b>	9.0	13.9
<b>Age (years)</b>								
18-29	152	2.3	0.0	4.9	154	12.5	5.2	19.9
30-44	487	8.2	3.2	13.2	489	12.0	6.6	17.4
45-64	908	7.9	5.3	10.5	909	11.7	8.6	14.7
65+	852	6.0	3.7	8.4	857	9.8	6.7	12.8

<b>PHR 9</b>	1,282	<b>11.7</b>	6.9	16.5	1,292	<b>17.1</b>	12.1	22.1
<b>Age (years)</b>								
18-29	84	--	--	--	85	--	--	--
30-44	192	9.7	3.2	16.3	192	15.3	7.3	23.3
45-64	520	8.5	5.4	11.6	525	13.9	9.4	18.5
65+	479	10.3	5.0	15.6	483	15.1	9.3	20.1
<b>PHR 10</b>	1,174	<b>5.9</b>	4.1	7.5	1,177	<b>9.9</b>	1.2	12.2
<b>Age (years)</b>								
18-29	87	5.3	0.7	9.9	87	7.8	2.1	13.5
30-44	229	3.2	0.9	5.5	231	8.7	4.3	13.1
45-64	475	8.3	4.9	11.8	476	11.8	7.9	15.8
65+	378	7.1	3.5	10.7	378	11.0	6.5	15.5
<b>PHR 11</b>	2,041	<b>4.2</b>	3.0	5.3	2,048	<b>7.0</b>	5.4	8.6
<b>Age (years)</b>								
18-29	199	2.8	0.0	5.8	201	6.4	2.1	10.6
30-44	538	4.7	2.3	7.1	540	8.1	4.6	11.6
45-64	718	4.0	2.3	5.7	719	6.1	3.9	8.2
65+	575	5.2	3.1	7.3	577	7.6	5.1	10.2

Data source: Texas Behavioral Risk Factor Surveillance System (BRFSS) statewide survey, 2010.

PHR = Public Health Region

'--' Indicates sample size less than 50 respondents and/or too small to be considered statistically valid.

Note: All reported rates are weighted for Texas demographics and the probability of selection.

#### **Current Asthma**

Numerator = Number of respondents who answered "Yes" to both of the following questions:

"Have you ever been told by a doctor, nurse, or other health professional that you have asthma?" and

"Do you still have asthma?"

Denominator = All respondents to the above questions, excluding unknowns and refusals.

#### **Lifetime Asthma**

Numerator = Number of respondents who answered "Yes" responses to the following question:

"Have you ever been told by a doctor, nurse, or other health professional that you have asthma?"

Denominator = All respondents to the above question, excluding unknowns and refusals.

### Interpretation for Table 3:

- According the 2010 Texas BRFSS, an estimated 12.8 percent (95% CI: 11.6-13.9) of adults aged 18 years and older had ever been diagnosed with asthma, and 7.4 percent (95% CI: 6.6-8.2) of adults currently had asthma.
- The prevalence of current asthma among adults was highest in PHR 9 (West Texas), in which approximately 11.7 percent (95% CI: 6.9-16.5) of adults currently had asthma.
- The prevalence of current asthma among adults was lowest among those living in PHR 11 (Lower South Texas) (4.2 percent; 95% CI: 3.0-5.3) and PHR 6 (South Texas) (5.0 percent; 95% CI: 3.9-6.0), which were significantly lower than the overall state prevalence (7.4 percent; 95% CI: 6.6-8.2) for adults.
- The prevalence of current asthma for 45 to 64 year olds living in PHR 11 (4.2 percent; 95% CI: 3.0-5.3) was significantly lower than the state prevalence for that age group (7.9 percent; 95% CI: 6.8-8.9).
- Among adults living in PHR 8 (Upper South Texas), the prevalence of current asthma was significantly higher among those aged 45-64 years (7.9 percent; 95% CI: 5.3-10.5) compared to those aged 18-29 years (2.3 percent; 95% CI: 0.0-4.9).
- The prevalence of lifetime asthma among adults was highest in PHR 1 (High Plains), in which an estimated 17.2 percent (95% CI: 13.7-20.8) had ever been diagnosed with asthma. This was significantly higher than the lifetime prevalence among adults in PHR 6 (10.8 percent; 95% CI: 9.0-12.6), PHR 10 (Upper Rio Grande) (9.9 percent; 95% CI: 1.2-12.2), and PHR 11 (7.0 percent; 95% CI: 5.4-8.6).
- The prevalence of lifetime asthma among adults was lowest among those living in PHR 11 (7.0 percent; 95% CI: 5.4-8.6), which was significantly lower than the overall state prevalence (12.8 percent; 95% CI: 11.6-13.9) and each public health region, except for PHR 10.
- There were no significant differences in lifetime asthma prevalence among adult age groups.

## Crude and Age-Adjusted Hospital Discharge Rates per 10,000 person-years for Asthma, Texas, 2007-2010

**Table 4. Age-Adjusted Hospitalization Rates per 10,000 for Asthma, by Public Health Region (PHR) and Age Group, Texas 2010**

	Admissions	Population Size	Crude Hospitalization Rate	Age-Adjusted Hospitalization Rate <sup>†</sup>	95% CI	
					Lower Limit	Upper Limit
<b>Texas</b>	25,587	25,145,561	<b>10.2</b>	<b>10.4</b>	10.3	10.6
<b>Age (years)</b>						
0-4	4,326	1,928,473	22.4		22.4	22.5
5-9	3,182	1,928,234	16.5		16.5	16.5
10-14	1,419	1,881,883	7.5		7.5	7.6
15-34	2,264	7,313,676	3.1		3.1	3.1
35-64	8,614	9,491,409	9.1		9.0	9.1
65+	5,782	2,601,886	22.2		22.1	22.3
<b>PHR 1</b>	868	839,586	<b>10.3</b>	<b>10.4</b>	9.7	11.1
<b>Age (years)</b>						
0-4	149	64,069	23.3		23.0	23.5
5-9	114	62,120	18.4		18.1	18.6
10-14	60	59,318	10.1		9.9	10.3
15-34	108	252,972	4.3		4.0	4.5
35-64	310	297,993	10.4		10.0	10.8
65+	127	103,114	12.3		12.0	12.6
<b>PHR 2</b>	564	550,250	<b>10.3</b>	<b>10.3</b>	9.4	11.1
<b>Age (years)</b>						
0-4	133	36,517	36.4		36.0	36.8
5-9	66	35,643	18.5		18.2	18.8
10-14	28	35,513	7.9		7.7	8.1
15-34	71	151,667	4.7		4.4	5.0
35-64	160	205,014	7.8		7.3	8.3
65+	106	85,896	12.3		12.0	12.6

<b>PHR 3</b>	7,099	6,733,179	<b>10.5</b>	<b>11.1</b>	10.8	11.3
<b>Age (years)</b>						
0-4	1,011	520,350	19.4		19.3	19.5
5-9	893	528,273	16.9		16.8	17.0
10-14	405	511,351	7.9		7.9	8.0
15-34	646	1,926,830	3.4		3.3	3.4
35-64	2,534	2,627,912	9.6		9.5	9.8
65+	1,610	618,463	26.0		25.9	26.2
<b>PHR 4</b>	1,115	1,111,696	<b>10.0</b>	<b>9.7</b>	9.1	10.3
<b>Age (years)</b>						
0-4	165	73,843	22.3		22.1	22.6
5-9	113	75,105	15.0		14.8	15.2
10-14	41	75,696	5.4		5.3	5.5
15-34	115	282,021	4.1		3.9	4.3
35-64	372	431,937	8.6		8.3	8.9
65+	309	173,094	17.9		17.6	18.1
<b>PHR 5</b>	950	767,222	<b>12.4</b>	<b>12.2</b>	11.4	12.9
<b>Age (years)</b>						
0-4	170	50,904	33.4		33.0	33.7
5-9	73	50,180	14.5		14.3	14.8
10-14	31	51,281	6.0		5.9	6.2
15-34	69	204,744	3.4		3.2	3.6
35-64	369	297,403	12.4		11.9	12.9
65+	238	112,710	21.1		20.8	21.5
<b>PHR 6</b>	4,639	6,087,133	<b>7.6</b>	<b>8.1</b>	7.9	8.4
<b>Age (years)</b>						
0-4	627	480,760	13.0		13.0	13.1
5-9	532	472,941	11.2		11.2	11.3
10-14	224	460,887	4.9		4.8	4.9
15-34	462	1,784,798	2.6		2.5	2.7

35-64	1,754	2,358,471	7.4		7.3	7.6
65+	1,040	529,276	19.6		19.5	19.8
<b>PHR 7</b>	2,660	2,948,364	<b>9.0</b>	<b>9.5</b>	9.2	9.9
Age (years)						
0-4	463	216,896	21.3		21.2	21.5
5-9	320	209,575	15.3		15.1	15.4
10-14	116	197,264	5.9		5.8	6.0
15-34	262	952,487	2.8		2.7	2.8
35-64	925	1,080,449	8.6		8.3	8.8
65+	574	291,693	19.7		19.5	19.9
<b>PHR 8</b>	2,964	2,604,647	<b>11.4</b>	<b>11.4</b>	11.0	11.8
Age (years)						
0-4	554	190,080	29.1		29.0	29.3
5-9	383	193,938	19.7		19.6	19.9
10-14	219	194,785	11.2		11.1	11.4
15-34	207	734,915	2.8		2.7	2.9
35-64	950	982,095	9.7		9.4	9.9
65+	651	308,834	21.1		20.9	21.3
<b>PHR 9</b>	681	571,871	<b>11.9</b>	<b>11.8</b>	10.9	12.7
Age (years)						
0-4	141	44,666	31.6		31.2	31.9
5-9	122	42,136	29.0		28.6	29.3
10-14	46	40,305	11.4		11.2	11.7
15-34	56	164,435	3.4		3.2	3.7
35-64	168	210,147	8.0		7.5	8.5
65+	148	70,182	21.1		20.7	21.5
<b>PHR 10</b>	918	825,913	<b>11.1</b>	<b>11.2</b>	10.4	11.9
Age (years)						
0-4	212	66,243	32.0		31.7	32.3
5-9	164	67,778	24.2		23.9	24.5

10-14	69	69,708	9.9		9.7	10.1
15-34	40	244,304	1.6		1.5	1.8
35-64	223	291,368	7.7		7.3	8.0
65+	210	86,512	24.3		23.9	24.7
<b>PHR 11</b>	2,608	2,105,700	<b>12.4</b>	<b>12.3</b>	11.8	12.8
<b>Age (years)</b>						
0-4	615	184,145	33.4		33.2	33.6
5-9	351	190,545	18.4		18.3	18.6
10-14	160	185,775	8.6		8.5	8.7
15-34	183	614,503	3.0		2.9	3.1
35-64	707	708,620	10.0		9.7	10.3
65+	592	222,112	26.7		26.4	26.9

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File 2010.

Population Data Source: 2010 Census data, Center for Health Statistics, Texas Department of State Health Services.

PHR = Public Health Region

<sup>†</sup> Hospitalization rates for overall Texas and overall PHR are age-adjusted hospitalization rates, which are age-adjusted to the 2000 U.S. Census population. Rates by age-group cannot be age-adjusted.

#### Interpretation for Table 4:

- According to 2010 Texas Health Care Information Collection (THCIC) data, among individuals with a known age group, there were 25,587 asthma hospitalizations in Texas, with an age-adjusted hospitalization rate (AAHR) of 10.4 per 10,000 (95% CI: 10.3-10.6).
- In all of Texas, individuals aged 0-4 years and aged 65 and over had the highest hospitalization rate at 22.4 per 10,000 (95% CI: 22.4-22.5) and 22.2 per 10,000 (95% CI: 22.1-22.3), respectively, which were both significantly higher than the overall state AAHR.
- Among all PHRs, the AAHR was highest in PHR 11 (Lower South Texas) (12.3 per 10,000; 95% CI: 11.8-12.8) and PHR 5 (Southeast Texas) (12.2 per 10,000; 95% CI: 11.4-12.9), and were both significantly higher than the state AAHR. The AAHR was lowest in PHR 6 (Gulf Coast) (8.1 per 10,000; 95% CI: 7.9-8.4), and was significantly lower than the state AAHR.
- Among 0-4 year olds, the hospitalization rate was highest in PHR 2 (Northwest Texas), at a rate of 36.4 per 10,000 (95% CI: 36.0-36.8), which was significantly higher than the rate for 0-4 year olds in all of Texas.
- Across all PHRs and compared to each age group, individuals aged 15-34 had the lowest asthma hospitalization rate, ranging from the lowest rate of 1.6 per 10,000 (95% CI: 1.5-1.8) in PHR 10 to a rate of 4.7 per 10,000 (95% CI: 4.4-5.0).



**Table 5. Age-Adjusted Hospitalization Rates per 10,000 for Asthma by County, Texas, 2010**

	Admissions	Population Size	Crude Hospitalization Rate	Age-Adjusted Hospitalization Rate	95% CI	
					Lower Limit	Upper Limit
<b>Texas</b>	25,587	25,145,561	10.2	10.5	10.4	10.6
<b>County</b>						
Anderson	76	58,458	13.0	14.3	11.0	17.5
Andrews	*	14,786	1.4	1.5	*	*
Angelina	85	86,771	9.8	9.6	7.5	11.6
Aransas	17	23,158	7.3	7.1	3.4	10.7
Archer	*	9,054	*	*	*	*
Armstrong	*	1,901	*	*	*	*
Atascosa	39	44,911	8.7	8.4	5.8	11.1
Austin	16	28,417	5.6	5.2	2.6	7.8
Bailey	*	7,165	*	*	*	*
Bandera	26	20,485	12.7	12.1	7.2	17.1
Bastrop	79	74,171	10.7	10.7	8.3	13.0
Baylor	*	3,726	*	*	*	*
Bee	47	31,861	14.8	16.0	11.4	20.6
Bell	350	310,235	11.3	11.4	10.1	12.6
Bexar	2,041	1,714,773	11.9	12.2	11.6	12.7
Blanco	*	10,497	*	*	*	*
Borden	*	641	*	*	*	*
Bosque	*	18,212	*	*	*	*
Bowie	99	92,565	10.7	10.6	8.5	12.7
Brazoria	236	313,166	7.5	7.7	6.7	8.7
Brazos	142	194,851	7.3	10.0	8.3	11.7
Brewster	14	9,232	15.2	17.2	8.1	26.3
Briscoe	*	1,637	*	*	*	*
Brooks	14	7,223	19.4	17.9	8.4	27.4
Brown	77	38,106	20.2	18.4	14.2	22.5
Burleson	19	17,187	11.1	10.3	5.6	15.0
Burnet	35	42,750	8.2	7.2	4.8	9.7
Caldwell	60	38,066	15.8	16.2	12.1	20.3

Calhoun	13	21,381	6.1	5.5	2.5	8.5
Callahan	23	13,544	17.0	19.9	11.7	28.1
Cameron	427	406,220	10.5	10.7	9.6	11.7
Camp	*	12,401	*	*	*	*
Carson	*	6,182	*	*	*	*
Cass	19	30,464	6.2	5.6	3.0	8.2
Castro	*	8,062	*	*	*	*
Chambers	*	35,096	*	*	*	*
Cherokee	70	50,845	13.8	13.0	9.9	16.0
Childress	17	7,041	24.1	26.9	14.0	39.8
Clay	*	10,752	*	*	*	*
Cochran	*	3,127	*	*	*	*
Coke	*	3,320	*	*	*	*
Coleman	*	8,895	*	*	*	*
Collin	613	782,341	7.8	8.6	7.9	9.3
Collingsworth	*	3,057	*	*	*	*
Colorado	*	20,874	*	*	*	*
Comal	117	108,472	10.8	10.0	8.2	11.8
Comanche	15	13,974	10.7	9.0	4.3	13.8
Concho	*	4,087	*	*	*	*
Cooke	51	38,437	13.3	12.4	9.0	15.8
Coryell	68	75,388	9.0	9.0	6.8	11.3
Cottle	*	1,505	*	*	*	*
Crane	*	4,375	*	*	*	*
Crockett	*	3,719	*	*	*	*
Crosby	*	6,059	*	*	*	*
Culberson	*	2,398	*	*	*	*
Dallam	*	6,703	*	*	*	*
Dallas	3,132	2,368,139	13.2	14.0	13.5	14.5
Dawson	*	13,833	*	*	*	*
Deaf Smith	*	19,372	*	*	*	*
Delta	*	5,231	*	*	*	*
Denton	540	662,614	8.1	9.6	8.7	10.4
De Witt	*	20,097	*	*	*	*

Dickens	*	2,444	*	*	*	*
Dimmit	*	9,996	*	*	*	*
Donley	*	3,677	*	*	*	*
Duval	26	11,782	22.1	21.5	13.2	29.8
Eastland	13	18,583	7.0	6.3	2.7	9.8
Ector	285	137,130	20.8	20.8	18.4	23.3
Edwards	*	2,002	*	*	*	*
Ellis	184	149,610	12.3	12.4	10.6	14.2
El Paso	889	800,647	11.1	11.2	10.4	11.9
Erath	25	37,890	6.6	7.2	4.3	10.0
Falls	*	17,866	*	*	*	*
Fannin	34	33,915	10.0	9.8	6.4	13.1
Fayette	*	24,554	*	*	*	*
Fisher	*	3,974	*	*	*	*
Floyd	*	6,446	*	*	*	*
Foard	*	1,336	*	*	*	*
Fort Bend	295	585,375	5.0	5.7	5.0	6.4
Franklin	*	10,605	*	*	*	*
Freestone	31	19,816	15.6	15.8	10.2	21.4
Frio	*	17,217	*	*	*	*
Gaines	*	17,526	*	*	*	*
Galveston	334	291,309	11.5	11.5	10.2	12.7
Garza	*	6,461	*	*	*	*
Gillespie	14	24,837	5.6	6.5	3.0	10.0
Glasscock	*	1,226	*	*	*	*
Goliad	*	7,210	*	*	*	*
Gonzales	*	19,807	*	*	*	*
Gray	27	22,535	12.0	11.5	7.2	15.9
Grayson	145	120,877	12.0	11.5	9.6	13.3
Gregg	159	121,730	13.1	12.8	10.8	14.8
Grimes	30	26,604	11.3	11.2	7.2	15.3
Guadalupe	109	131,533	8.3	8.3	6.7	9.8
Hale	35	36,273	9.6	9.3	6.2	12.4
Hall	*	3,353	*	*	*	*

Hamilton	*	8,517	1.2	1.2	.	.
Hansford	*	5,613	*	*	*	*
Hardeman	*	4,139	*	*	*	*
Hardin	62	54,635	11.3	11.1	8.3	13.9
Harris	3,050	4,092,459	7.5	8.1	7.8	8.4
Harrison	41	65,631	6.2	6.2	4.3	8.1
Hartley	*	6,062	*	*	*	*
Haskell	*	5,899	*	*	*	*
Hays	136	157,107	8.7	9.8	8.1	11.5
Hemphill	*	3,807	*	*	*	*
Henderson	81	78,532	10.3	9.9	7.7	12.1
Hidalgo	894	774,769	11.5	11.4	10.6	12.2
Hill	56	35,089	16.0	15.6	11.5	19.7
Hockley	30	22,935	13.1	13.1	8.4	17.8
Hood	28	51,182	5.5	5.8	3.6	8.0
Hopkins	*	35,161	*	*	*	*
Houston	40	23,732	16.9	15.3	10.4	20.1
Howard	120	35,012	34.3	36.0	29.5	42.5
Hudspeth	*	3,476	*	*	*	*
Hunt	95	86,129	11.0	10.7	8.6	12.9
Hutchinson	26	22,150	11.7	11.2	6.9	15.5
Irion	*	1,599	*	*	*	*
Jack	*	9,044	*	*	*	*
Jackson	17	14,075	12.1	11.4	5.9	16.9
Jasper	38	35,710	10.6	10.0	6.8	13.2
Jeff Davis	*	2,342	*	*	*	*
Jefferson	343	252,273	13.6	13.8	12.3	15.2
Jim Hogg	*	5,300	*	*	*	*
Jim Wells	72	40,838	17.6	17.2	13.2	21.1
Johnson	270	150,934	17.9	18.0	15.8	20.1
Jones	14	20,202	6.9	8.8	4.1	13.5
Karnes	*	14,824	*	*	*	*
Kaufman	193	103,350	18.7	19.0	16.3	21.7
Kendall	21	33,410	6.3	5.6	3.2	8.0

Kenedy	*	416	*	*	*	*
Kent	*	808	*	*	*	*
Kerr	44	49,625	8.9	8.2	5.6	10.8
Kimble	*	4,607	*	*	*	*
King	*	286	*	*	*	*
Kinney	*	3,598	*	*	*	*
Kleberg	51	32,061	15.9	16.3	11.8	20.8
Knox	*	3,719	*	*	*	*
Lamar	61	49,793	12.3	12.0	8.9	15.0
Lamb	*	13,977	*	*	*	*
Lampasas	25	19,677	12.7	12.2	7.4	17.1
LaSalle	*	6,886	*	*	*	*
Lavaca	34	19,263	17.7	16.9	11.1	22.6
Lee	*	16,612	*	*	*	*
Leon	18	16,801	10.7	8.8	4.5	13.0
Liberty	113	75,643	14.9	15.2	12.4	18.0
Limestone	29	23,384	12.4	12.2	7.8	16.7
Lipscomb	*	3,302	*	*	*	*
Live Oak	*	11,531	*	*	*	*
Llano	*	19,301	*	*	*	*
Loving	*	82	*	*	*	*
Lubbock	362	278,831	13.0	13.9	12.5	15.3
Lynn	*	5,915	*	*	*	*
McCulloch	*	8,283	*	*	*	*
McLennan	246	234,906	10.5	10.6	9.3	12.0
McMullen	*	707	*	*	*	*
Madison	*	13,664	*	*	*	*
Marion	*	10,546	*	*	*	*
Martin	*	4,799	*	*	*	*
Mason	*	4,012	*	*	*	*
Matagorda	49	36,702	13.4	12.6	9.1	16.2
Maverick	102	54,258	18.8	20.1	16.2	24.0
Medina	39	46,006	8.5	8.4	5.8	11.1
Menard	*	2,242	*	*	*	*

Midland	76	136,872	5.6	5.5	4.3	6.8
Milam	43	24,757	17.4	16.3	11.4	21.2
Mills	*	4,936	*	*	*	*
Mitchell	*	9,403	*	*	*	*
Montague	*	19,719	*	*	*	*
Montgomery	369	455,746	8.1	8.1	7.3	9.0
Moore	17	21,904	7.8	7.7	3.9	11.4
Morris	*	12,934	*	*	*	*
Motley	*	1,210	*	*	*	*
Nacogdoches	83	64,524	12.9	13.6	10.7	16.6
Navarro	59	47,735	12.4	12.0	8.9	15.1
Newton	15	14,445	10.4	9.7	4.7	14.6
Nolan	*	15,216	*	*	*	*
Nueces	544	340,223	16.0	16.0	14.7	17.4
Ochiltree	*	10,223	*	*	*	*
Oldham	*	2,052	*	*	*	*
Orange	112	81,837	13.7	13.4	10.9	15.9
Palo Pinto	52	28,111	18.5	17.7	12.8	22.5
Panola	28	23,796	11.8	11.6	7.3	15.9
Parker	96	116,927	8.2	8.1	6.5	9.7
Parmer	*	10,269	*	*	*	*
Pecos	*	15,507	*	*	*	*
Polk	49	45,413	10.8	10.5	7.4	13.5
Potter	177	121,073	14.6	14.0	11.9	16.0
Presidio	*	7,818	*	*	*	*
Rains	14	10,914	12.8	12.8	5.8	19.7
Randall	110	120,725	9.1	9.2	7.5	10.9
Reagan	*	3,367	*	*	*	*
Real	*	3,309	*	*	*	*
Red River	52	12,860	40.4	37.2	26.8	47.7
Reeves	*	13,783	*	*	*	*
Refugio	*	7,383	*	*	*	*
Roberts	*	929	*	*	*	*
Robertson	23	16,622	13.8	12.6	7.4	17.8

Rockwall	58	78,337	7.4	7.6	5.6	9.5
Runnels	14	10,501	13.3	13.8	6.5	21.1
Rusk	41	53,330	7.7	7.7	5.3	10.0
Sabine	*	10,834	*	*	*	*
San Augustine	17	8,865	19.2	17.5	8.8	26.2
San Jacinto	29	26,384	11.0	10.0	6.3	13.7
San Patricio	95	64,804	14.7	14.1	11.3	16.9
San Saba	*	6,131	*	*	*	*
Schleicher	*	3,461	*	*	*	*
Scurry	*	16,921	*	*	*	*
Shackelford	*	3,378	*	*	*	*
Shelby	29	25,448	11.4	10.8	6.9	14.8
Sherman	*	3,034	*	*	*	*
Smith	162	209,714	7.7	7.6	6.4	8.8
Somervell	*	8,490	*	*	*	*
Starr	48	60,968	7.9	8.0	5.7	10.3
Stephens	*	9,630	*	*	*	*
Sterling	*	1,143	*	*	*	*
Stonewall	*	1,490	*	*	*	*
Sutton	*	4,128	*	*	*	*
Swisher	*	7,854	*	*	*	*
Tarrant	1,478	1,809,034	8.2	8.7	8.2	9.1
Taylor	209	131,506	15.9	16.0	13.8	18.2
Terrell	*	984	*	*	*	*
Terry	*	12,651	*	*	*	*
Throckmorton	*	1,641	*	*	*	*
Titus	*	32,334	*	*	*	*
Tom Green	138	110,224	12.5	12.8	10.6	14.9
Travis	874	1,024,266	8.5	9.9	9.2	10.6
Trinity	28	14,585	19.2	16.3	10.0	22.6
Tyler	*	21,766	*	*	*	*
Upshur	27	39,309	6.9	6.5	4.0	9.0
Upton	*	3,355	*	*	*	*
Uvalde	26	26,405	9.8	9.4	5.8	13.0

Val Verde	14	48,879	2.9	2.8	1.3	4.3
Van Zandt	101	52,579	19.2	17.6	14.1	21.1
Victoria	205	86,793	23.6	22.9	19.8	26.1
Walker	92	67,861	13.6	14.1	11.2	17.1
Waller	36	43,205	8.3	9.2	6.1	12.2
Ward	*	10,658	*	*	*	*
Washington	*	33,718	*	*	*	*
Webb	308	250,304	12.3	13.9	12.2	15.5
Wharton	33	41,280	8.0	7.8	5.1	10.4
Wheeler	*	5,410	*	*	*	*
Wichita	128	131,500	9.7	9.7	8.0	11.4
Wilbarger	*	13,535	*	*	*	*
Willacy	31	22,134	14.0	15.0	9.7	20.2
Williamson	314	422,679	7.4	7.5	6.6	8.3
Wilson	34	42,918	7.9	7.8	5.1	10.4
Winkler	*	7,110	*	*	*	*
Wise	41	59,127	6.9	6.9	4.8	9.0
Wood	51	41,964	12.2	11.0	7.8	14.2
Yoakum	*	7,879	*	*	*	*
Young	*	18,550	*	*	*	*
Zapata	*	14,018	*	*	*	*
Zavala	*	11,677	*	*	*	*
Unknown county	529	.	.	.	.	.

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2010.

Population Data Source: 2010 census data, Center for Health Statistics, Texas Department of State Health Services.

‘\*’ Indicates a county reported less than 12 hospitalizations. Sample size is too small to be considered statistically valid.

Notes Hospitalization rates are age-adjusted to the 2000 U.S. Census population.

Numerator = Number of hospital admissions with a principal diagnosis of asthma (ICD-9: 493.0-493.9).

Denominator = 2010 Texas Population.



**Interpretation for Table 5:**

- According to 2010 THCIC data, there were 25,596 asthma hospitalizations in Texas. The counties with the highest number of asthma hospital admissions were Dallas County with 3,132 admissions and Harris County with 3,050 admissions. Among counties with 12 or more asthma hospitalizations, the counties with the highest asthma AAHR were Red River County, at 37.2 per 10,000 (95% CI: 26.8-47.7) and Howard County, at 36.0 per 10,000 (95% CI: 29.5-42.5). The crude, unadjusted asthma hospitalization rate was 40.4 per 10,000 for Red River County and was 34.3 per 10,000 for Howard County.

**Appendix includes the following Tables in PDF format:**

Table 6. Age-Adjusted Hospitalization Rates per 10,000 for Asthma by County, Texas, 2007

Table 7. Age-Adjusted Hospitalization Rates per 10,000 for Asthma by County, Texas, 2008

Table 8. Age-Adjusted Hospitalization Rates per 10,000 for Asthma by County, Texas, 2009

**Footnotes for Tables 6, 7, and 8:**

Data Source: Texas Health Care Information Collection (THCIC), Inpatient Hospital Discharge Public Use Data File, 2007, 2008, 2009.

Population Data Source: Center for Health Statistics, Texas Department of State Health Services.

AARate = Age-Adjusted Hospitalization Rate.

LowerCI = Lower 95% Confidence Interval for the age-adjusted hospitalization rate.

UpperCI = Upper 95% Confidence Interval for the age-adjusted hospitalization rate.

'\*' Indicates a county reported less than 20 hospitalizations. Sample size is too small to be considered statistically valid.

Note: Hospitalization rates by county are age-adjusted to the 2000 U.S. Census population.

Hospitalization rate for Texas is the crude rate and has not been age-adjusted due to missing data on age.

Numerator = Number of hospital admissions with a principal diagnosis of asthma (ICD-9: 493.0-493.9).

Denominator = 2007, 2008, or 2009 Texas Population Estimate.

**Interpretation for Tables 6, 7, and 8:**

- According to the 2007 THCIC data, there were 26,764 asthma hospitalizations in Texas. The counties with the highest number of asthma hospital admissions were Harris County with 3,272 admission and Dallas County with 3,172 admissions. Among counties with 20 or more asthma hospitalizations, Howard County reported the highest crude asthma hospitalization rate (40.1 per 10,000) and AAHR at 41.7 per 10,000 (95% CI: 34.5-48.9), with 131 asthma hospitalizations.
- According to the 2008 THCIC data, there were 26,062 asthma hospitalizations in Texas. The counties with the highest number of asthma hospital admissions were Harris County with 3,273 admission and Dallas County with 3,115 admissions. Among counties with 20 or more asthma hospitalizations, Red River County reported the highest crude asthma hospitalization rate (46.3 per 10,000) and AAHR at 29.2 per 10,000 (95% CI: 23.3-35.0), with 63 asthma hospitalizations.

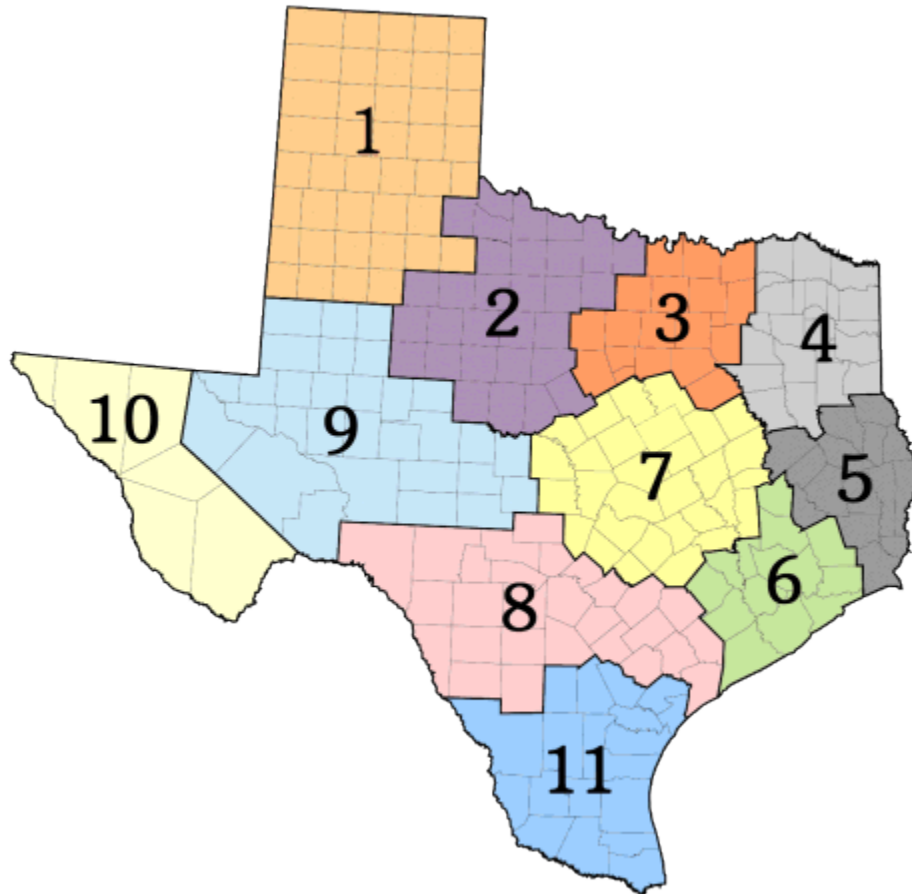
- According to the 2009 THCIC data, there were 28,044 asthma hospitalizations in Texas. The counties with the highest number of asthma hospital admissions were Dallas County with 3,641 admissions and Harris County with 3,397. Among counties with 20 or more asthma hospitalizations, Red River County reported the highest crude asthma hospitalization rate (40.5 per 10,000) and AAHR at 37.5 per 10,000 (95% CI: 27.3-47.7), with 55 asthma hospitalizations.

**Limitations of the data used in this report:**

- Mortality rates, prevalence estimates, and hospitalization rates for some public health regions, age-groups, or counties were not available due to small sample size.
- Asthma mortality rates based on underlying cause of death data obtained from death certificates may underestimate actual asthma-based mortality.
- Asthma mortality rates may be inaccurate due to coding errors. The coding of asthma and other respiratory deaths in the elderly is problematic due to difficulties in diagnosis and the presence of other co-morbid conditions that can lead to coding inaccuracies.
- Prevalence estimates from BRFSS may underestimate the true prevalence of asthma among Texas children and adults because the survey does not identify undiagnosed cases of asthma.
- Hospitalization data are based on inpatient hospitalization and does not include emergency department visits which did not result in hospital admission.
- The Texas Hospital Inpatient Discharge Public Use Data results do not include HIV and drug/alcohol use patients.
- The Texas Hospital Inpatient Discharge Public Use Data represent the number of inpatient hospitalizations. Since the data have been de-identified and an individual can be hospitalized more than once for the same condition during the data collection period, multiple hospitalizations for the same individual and the same diagnosis cannot be distinguished.
- The Texas Hospital Inpatient Discharge Public Use Data is not a complete source of information on asthma-related discharges since some hospitals in Texas are exempt from reporting requirements. This may result in an underestimation of the number and rate of related discharges.

## Appendix

Figure 1A. Map of Public Health Regions, Texas



[http://www.hhs.state.tx.us/aboutHHS/HHS\\_Regions.shtml#01](http://www.hhs.state.tx.us/aboutHHS/HHS_Regions.shtml#01)

**Table 1A. List of Counties by Public Health Region, Texas**

<b>Public Health Region</b>	<b>Counties Served</b>
Region 1: High Plains	Armstrong, Bailey, Briscoe, Carson, Castro, Childress, Cochran, Collingsworth, Crosby, Dallam, Deaf Smith, Dickens, Donley, Floyd, Garza, Gray, Hale, Hall, Hansford, Hartley, Hemphill, Hockley, Hutchinson, King, Lamb, Lipscomb, Lubbock, Lynn, Moore, Motley, Ochiltree, Oldham, Parmer, Potter, Randall, Roberts, Sherman, Swisher, Terry, Wheeler, Yoakum
Region 2: Northwest Texas	Archer, Baylor, Brown, Callahan, Clay, Coleman, Comanche, Cottle, Eastland, Fisher, Foard, Hardeman, Haskell, Jack, Jones, Kent, Knox, Mitchell, Montague, Nolan, Runnels, Scurry, Shackelford, Stonewall, Stephens, Taylor, Throckmorton, Wichita, Wilbarger, Young
Region 3: Metroplex	Collin, Cooke, Dallas, Denton, Ellis, Erath, Fannin, Grayson, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant, Wise
Region 4: Upper East Texas	Anderson, Bowie, Camp, Cass, Cherokee, Delta, Franklin, Gregg, Harrison, Henderson, Hopkins, Lamar, Marion, Morris, Panola, Rains, Red River, Rusk, Smith, Titus, Upshur, Van Zandt, Wood
Region 5: Southeast Texas	Angelina, Hardin, Houston, Jasper, Jefferson, Nacogdoches, Newton, Orange, Polk, Sabine, San Augustine, San Jacinto, Shelby, Trinity, Tyler
Region 6: Gulf Coast	Austin, Brazoria, Chambers, Colorado, Fort Bend, Galveston, Harris, Liberty, Matagorda, Montgomery, Walker, Waller, Wharton
Region 7: Central Texas	Bastrop, Bell, Blanco, Bosque, Brazos, Burleson, Burnet, Caldwell, Coryell, Falls, Fayette, Freestone, Grimes, Hamilton, Hays, Hill, Lampasas, Lee, Leon, Limestone, Llano, Madison, McLennan, Milam, Mills, Robertson, San Saba, Travis, Washington, Williamson
Region 8: Upper South Texas	Atacosa, Bandera, Bexar, Calhoun, Comal, DeWitt, Dimmit, Edwards, Frio, Gillespie, Goliad, Gonzales, Guadalupe, Jackson, Karnes, Kendall, Kerr, Kinney, La Salle, Lavaca, Maverick, Medina, Real, Uvalde, Val Verde, Victoria, Wilson, Zavala
Region 9: West Texas	Andrews, Borden, Coke, Concho, Crane, Crockett, Dawson, Ector, Gaines, Glasscock, Howard, Irion, Kimble, Loving, Martin, Mason, McCulloch, Menard, Midland, Pecos, Reagan, Reeves, Schleicher, Sterling, Sutton, Terrell, Tom Green, Upton, Ward, Winkler
Region 10: Upper Rio Grande	Brewster, Culberson, El Paso, Hudspeth, Jeff Davis, Presidio
Region 11: Lower South Texas	Aransas, Bee, Brooks, Cameron, Duval, Hidalgo, Jim Hogg, Jim Wells, Kenedy, Kleberg, Live Oak, McMullen, Nueces, Refugio, San Patricio, Starr, Webb, Willacy, Zapata